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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,088	03/23/2004	Geoffrey Burke Bauer	10543-069	3841

7590 01/22/2009

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EXAMINER	
MANCHO, RONNIE M	

ART UNIT	PAPER NUMBER
3664	

MAIL DATE	DELIVERY MODE
01/22/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,088	BAUER ET AL.	
	Examiner	Art Unit	
	RONNIE MANCHO	3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,7,9,11 and 18-30* is/are pending in the application.

4a) Of the above claim(s) *18-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,7,9,11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant traverses the restriction cited in the last office action. Applicant's remarks are not convincing. First applicant withdrew the non-elected claims 18-24 and submitted new claims 25-30. It is noted that claims 25-30 now depend from claim 1. The examiner notes that the subject matter of claims 25-30 correspond to the limitations of withdrawn claims 18-24.

Furthermore, applicant argues that the restriction in the last office action was improper because the invention of independent claim 18 and independent claim 1 ARE connected. The examiner disagrees and notes that applicant is not arguing that they are not distinct, but only states that they are connected. The examiner believes that the inventions are distinct, mutually exclusive, and have separate classification as already mentioned in the last office action. That is the filter of claim 1 is different and operates in a patentably distinct and exclusive manner compared to the filter of claim 18. They further have acquired different classification.

Further, although the limitations of newly submitted claim 25 were already constructively not elected, it is further noted that applicant's disclosed claim 25 recites a "filter is configured to receive the transformed first and second sets of linear acceleration signals from the signal adjuster and processes at least one of the transformed first and second sets of linear acceleration signals into at least one of a roll rate, a roll angle and a yaw rate", and further wherein the VERY FILTER IS AGAIN "configured to process the first and second sets of linear acceleration signals using a model to generate at least one of a roll angle, a roll rate, and a yaw rate, the model being a model of the vehicle dynamics and the linear accelerometers, the model being based in part on

distances along at least one of an x-axis, a y-axis, and a z-axis from each of the linear accelerometers to at least one of a yaw axis and a roll axis of the vehicle".

These are mutually exclusive and distinct inventions in that the filter must first "receive transformed first and second sets of linear acceleration signals from a signal adjuster and processes at least one of the transformed first and second sets of linear acceleration signals *into at least one of a roll rate, a roll angle and a yaw rate*", and then secondly the VERY FILTER must again "process the first and second sets of linear acceleration signals *using a model to generate at least one of a roll angle, a roll rate, and a yaw rate,* the model being a model of the vehicle dynamics and the linear accelerometers, the model being based in part on distances along at least one of an x-axis, a y-axis, and a z-axis from each of the linear accelerometers to at least *one of a yaw axis and a roll axis of the vehicle*". This implies that "one of a roll angle, a roll rate, and a yaw rate" have been generated twice using two patentably distinct and different methods. Thus the inventions are distinct and mutually exclusive, since two different methods are used for generating "one of a roll angle, a roll rate, and a yaw rate". Thus the restriction is proper and maintained.

The limitations in claims 25-30 belong to a non-elected embodiment. Applicant is attempting to re-instate withdrawn limitations. Thus the restriction is proper and maintained.

Applicant further arguments that the examiner does not show burden is not convincing. Burden is shown in MPEP § 808.02. Thus the restriction is proper and maintained.

Since applicant has received an action on the merits for the originally presented invention of claims 1-3, 5, 7, 9, 11, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 25-30 are withdrawn from

consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 5, 7, 9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tseng et al (2005/0149240) in view of LaPlante et al (6732033).

Regarding claim 1, Tseng et al (abstract; figs. 1-8) disclose a system for estimating body states of a vehicle comprising:

a first linear accelerometer and a second linear accelerometer mounted (32, 36; sec. 0031, 0043, figs. 1-4) to the vehicle in separate locations from each other, the first and second linear accelerometers each being configured to measure the acceleration (sec 0025 to 0028, 0046, 0047) of the vehicle in a first direction and generate measured first and second linear acceleration signals (lateral acceleration signal, longitudinal acceleration signal; sec 0025 to 0028, 0046, 0047; see page 6, claims 8-15) based on the acceleration of the vehicle in the first direction, the measured first and second linear acceleration signals defining a first set of linear acceleration signals;

a third linear accelerometer 35 mounted to the vehicle in a separate location from sensors 32 and 36 (figs. 1-4), the third linear accelerometer configured to measure the acceleration of the

vehicle in a second direction (sec 0025 to 0028, 0046, 0047; figs. 1- 4) and generate measured third linear acceleration signals (vertical acceleration signal; sec 0025 to 0028, 0046, 0047; see page 6, claims 8-15) based on the acceleration of the vehicle in the second direction, wherein the second direction is different from the first direction, the measured third acceleration signals defining a second set of acceleration signals.

Tseng et al do not disclose a fourth accelerometer measuring acceleration in a second direction. However, Tseng section 0031 discloses that a system that INCLUDES MULTIPLE acceleration signals for sensing acceleration signals in a first and second direction. The term "includes" is interpreted as "comprising" NOT -- consisting-- as applicant appears to indicate. Now, LaPlante et al teach of: a first linear accelerometer and a second linear accelerometer mounted to a vehicle at separate locations from each other, the first and second linear accelerometers being configured to measure the acceleration of the vehicle in a first direction and generate measured first and second acceleration signals (acceleration signals; col. 10, lines 21-44; col. 6, lines 27-45) based on the acceleration of the vehicle in the first direction; and a third linear accelerometer and a fourth linear accelerometer mounted to the vehicle at separate locations from each other, the third linear and fourth linear accelerometers being configured to measure the acceleration of the vehicle in a second direction and generate measured third and fourth acceleration signals (acceleration signals; col. 10, lines 21-44; col. 6, lines 27-45) based on the acceleration of the vehicle in the second direction.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tseng as taught by LaPlante et al for the purpose of accurately

measuring acceleration of vehicle in a given direction in case one of the accelerometers in the first or second direction gets bad, or as a back up when one accelerometer in a direction fails.

The combination of Tseng and LaPlante et al further disclose:

a signal adjuster (66, 68, fig. 4; see Tseng) configured to transform the first and second sets of linear acceleration signals from a sensor coordinate system to a body coordinate system associated with the vehicle (see Tseng, sec. 0025-0030, 0046 to 0050); and

an estimating filter (74, fig. 4; sec 0044, 0049; see Tseng) configured to receive the transformed first and second sets of linear acceleration signals from the signal adjuster (66, 68, fig. 4) and processes at least one of the transformed first and second sets of linear acceleration signals into at least one of a roll rate, a roll angle and a yaw rate (roll angle, pitch angle, etc; sec. 0044 to 0049; see Tseng figs 4, 6-8).

Regarding claim 2, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1 wherein the filter includes a model of the vehicle dynamics (sec. 0046, 0048) and a model of the linear accelerometer; the at least one of a roll rate, a roll angle, and a yaw rate (roll angle, pitch angle, etc; sec. 0044 to 0049; see Tseng figs 4, 6-8) being based on the at least one of the transformed first and second sets of linear acceleration signals and the models of the vehicle dynamics and linear accelerometers (sec 0046, 0048).

Regarding claim 3, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 2 wherein the filter includes an estimator (see Kalman filter, sec. 0049; figs. 6-8 of Tseng), an algorithm being implemented in the estimator to process the at least one of the transformed first and second sets of linear acceleration signals and the models of the

vehicle dynamics and linear accelerometers and generate the at least one of a roll rate, a roll angle, and a yaw rate (roll angle, pitch angle, etc; sec. 0044 to 0049; see Tseng figs 4, 6-8).

Regarding claim 5, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1 further comprising an angular rate sensor.

Regarding claim 7, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1, but did not disclose two accelerometers that measure accelerations in a third direction. However, one of ordinary skill in the art after combining Tseng and LaPlante will be able to add more accelerometers in a third direction for measuring accelerations in the third direction. Therefore, it would have been obvious to one of ordinary skill in the art to modify Tseng/LaPlante as taught by LaPlante since it has been held that known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are practicable to one of ordinary skill in the art.

Regarding claim 9, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1, wherein Tseng et al disclose only one accelerometer that measures acceleration in a vertical direction, but did not disclose two accelerometers that measure vertical accelerations of the vehicle. However, one of ordinary skill in the art after combining Tseng and LaPlante will be able to add more accelerometers in a vertical direction for measuring accelerations in the vertical direction. Therefore, it would have been obvious to one of ordinary skill in the art to modify Tseng/LaPlante as taught by LaPlante since it has been held that known work in one field of endeavor may prompt variations of it for use in either the same

field or a different one based on design incentives or other market forces if the variations are practicable to one of ordinary skill in the art.

Regarding claim 11, Tseng/LaPlante et al (abstract; sec. 0046-0053; figs. 1-8; see Tseng) disclose the system of claim 1 wherein the signal adjuster further provides compensation for gravity biases associated with the linear accelerometers (see gravity <g>, Tseng sec. 0046).

Response to Arguments

4. Applicant's arguments filed 11/03/08 have been fully considered but they are all not persuasive.

The 112 rejections to "estimating" and antecedent basis to "the models" have been withdrawn in view of applicant's amendments.

Applicant traverses the 103 rejections by Tseng in view of LaPlante. The examiner respectfully disagrees.

Both references in combination anticipate two accelerometers measuring acceleration in a first direction and two other acceleration sensors measuring accelerations in a second direction, etc. Further, Tseng in view of Laplante disclose separate locations for mounting acceleration sensors such as on the un-sprung mass and on the sprung mass of the vehicle.

Tseng et al do not particularly disclose a fourth accelerometer measuring acceleration in a second direction. However, Tseng et al section 0031 disclose a system that INCLUDES MULTIPLE acceleration signals for sensing acceleration signals in a first and second direction, wherein the first direction is different from the second direction. The term "includes" is interpreted as "comprising" NOT -- consisting-- as applicant appears to indicate. Now, LaPlante

et al teach of: a first linear accelerometer and a second linear accelerometer mounted to a vehicle at separate locations from each other, the first and second linear accelerometers being configured to measure the acceleration of the vehicle in a first direction and generate measured first and second acceleration signals (acceleration signals; col. 10, lines 21-44; col. 6, lines 27-45) based on the acceleration of the vehicle in the first direction; and a third linear accelerometer and a fourth linear accelerometer mounted to the vehicle at separate locations from each other, the third linear and fourth linear accelerometers being configured to measure the acceleration of the vehicle in a second direction and generate measured third and fourth acceleration signals (acceleration signals; col. 10, lines 21-44; col. 6, lines 27-45) based on the acceleration of the vehicle in the second direction.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tseng as taught by LaPlante et al for the purpose of accurately measuring acceleration of vehicle in a given direction in case one of the accelerometers in the first or second direction gets bad, or as a back up when one accelerometer in a direction fails.

The combination of Tseng and LaPlante et al further disclose:

a signal adjuster (66, 68, fig. 4; see Tseng) configured to transform the first and second sets of linear acceleration signals from a sensor coordinate system to a body coordinate system associated with the vehicle (see Tseng, sec. 0025-0030, 0046 to 0050); and

a filter (74, fig. 4; sec 0044, 0049; see Tseng) configured to receive the transformed firsht and second sets of linear acceleration signals from the signal adjuster (66, 68, fig. 4) and processes at least one of the transformed first and second sets of linear acceleration signals into

at least one of a roll rate, a roll angle and a yaw rate (roll angle, pitch angle, etc; sec. 0044 to 0049; see Tseng figs 4, 6-8).

The Tseng signal adjuster and filter are capable of processing signals from a first and second accelerometer measuring in a first direction and third and fourth accelerometer measuring in a second direction. This is so because section 0031 of Tseng permits the designer to not limit the number of accelerometers used.

Applicant's belligerent remarks on page 13 in section three of the reply dated 11/3/08 is not appreciated. Applicant makes the remark that the examiner's classification in the action dated 8/1/08 is a "SHAM", emphasis added. This is nonsensical. It is noted that the office discourages Hoaxes, tricks to delude, or falsely making rejections. Applicant's remarks are WELL NOTED.

It is therefore believed that the rejections are proper and thus stand.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONNIE MANCHO whose telephone number is (571)272-6984. The examiner can normally be reached on Mon-Thurs: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Khoi can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ronnie Mancho
Examiner
Art Unit 3664

/KHOI TRAN/

Supervisory Patent Examiner, Art Unit 3664